

FAA AEROSPACE FORECASTS FISCAL YEARS 2014 – 2034

Developing forecasts of aviation demand and activity levels continues to be challenging as the aviation industry evolves and prior relationships change. In times of amplified volatility, the process is filled with uncertainty, particularly in the short-term. Once again, the U.S. aviation industry has shown that the demand for air travel is resilient as it rebounds from its most recent downward spiral caused by the Great Recession. As 2014 begins, lingering questions remain. Are the U.S. and global economies on firm ground? Have the structural changes undertaken by the industry over the past 5 years revamped the industry from one of boom-to-bust to one of sustainable profits? Has industry consolidation finished?

The FAA has developed a set of assumptions and forecasts consistent with the emerging trends and structural changes currently taking place within the aviation industry. The intent of these forecasts is to accurately predict future demand; however, due to the large uncertainty of the operating environment, the variance around the forecasts is wider than it was in prior years.

The commercial aviation forecasts and assumptions are developed from econometric models that explain and incorporate emerging trends for the different segments of the industry. In addition, the commercial aviation forecasts are considered unconstrained in that they assume there will be sufficient infrastructure to handle the projected levels of activity. These forecasts do not assume further contractions of the industry through bankruptcy, consolidation, or liquidation. They also do not assume any drastic changes in federal government operations.

The commercial aviation forecast methodology is a blended one. The starting point for developing the commercial aviation forecasts (air carriers and regionals) is the future schedules published by airlines through Innovata. To generate the short-term forecast (i.e., one year out) current monthly trends are used in conjunction with published monthly schedules to allow FAA forecasters to develop monthly capacity and demand forecasts for both mainline and regional carriers for fiscal and calendar years 2014-15. The medium to long-term forecasts (2015-2034) are based on the results of econometric models.

The general aviation forecasts rely heavily on discussions with industry experts conducted at industry meetings, including four Transportation Research Board (TRB) meetings of Business Aviation and Civil Helicopter Subcommittees in May 2013 and January 2014 along with the results of the 2012 General Aviation and Part 135 Activity Survey. The assumptions have been updated by FAA analysts to reflect more recent data and developing trends, as well as further information from industry experts.

The FAA also presents the draft forecasts and assumptions to industry staff and aviation associations, who are asked to comment on the reasonableness of the assumptions and forecasts. Their comments and/or suggestions have been incorporated into the forecasts as appropriate.

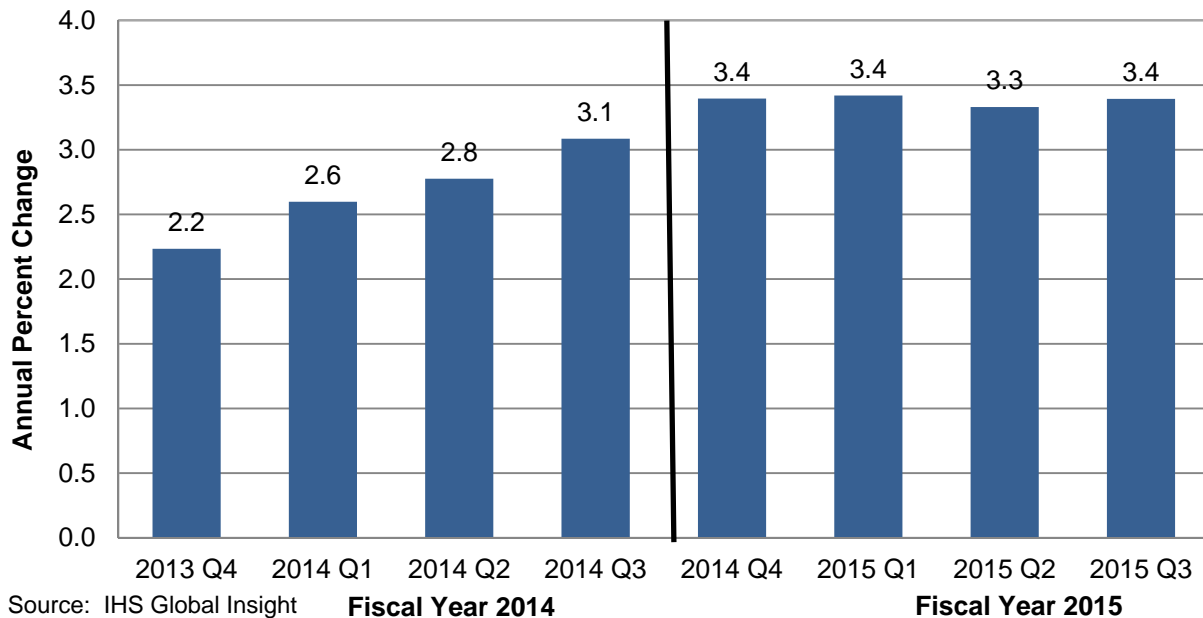
ECONOMIC FORECASTS

For this year's Aerospace Forecast, the FAA is using economic forecasts developed by IHS Global Insight, Inc. to project domestic aviation demand. Furthermore, the FAA uses world and individual country economic projections provided by IHS Global Insight, Inc. to forecast the demand for international aviation services. Annual historical data and economic forecasts are presented in Tables 1 through 4. U.S. economic forecasts are presented on a U.S. government fiscal year (October through September) basis, whereas international forecasts are presented on a calendar year basis.

As the recovery is now approaching its fifth year, the headwinds that have been faced by the economy appear to be diminishing. IHS Global Insight expects the recovery to begin to accelerate and the U.S. economy to grow faster than in the past few years. In the U.S., private sector debt levels have been coming down and public sector debt levels have stabilized. The housing market had its best performance since 2007 despite a rise in mortgage rates in the summer of 2013. The most recent data suggest a firming of the employment market. In the global economy, the outlook for Europe is improving and recent data from China still points to a "soft" landing (e.g. GDP growth remaining above 7 percent).

The boost to the economy from fiscal stimulus has faded, leaving the economy to depend on underlying strength in private demand. Growth is projected to accelerate throughout FY 2014 as the drag from the Federal government shutdown, reductions in government spending, and tepid consumer spending during the last Christmas holiday diminishes over the year. On a quarter-by-quarter basis, U.S. economic growth is projected to range between 2.2 to 3.4 percent for the next two years.

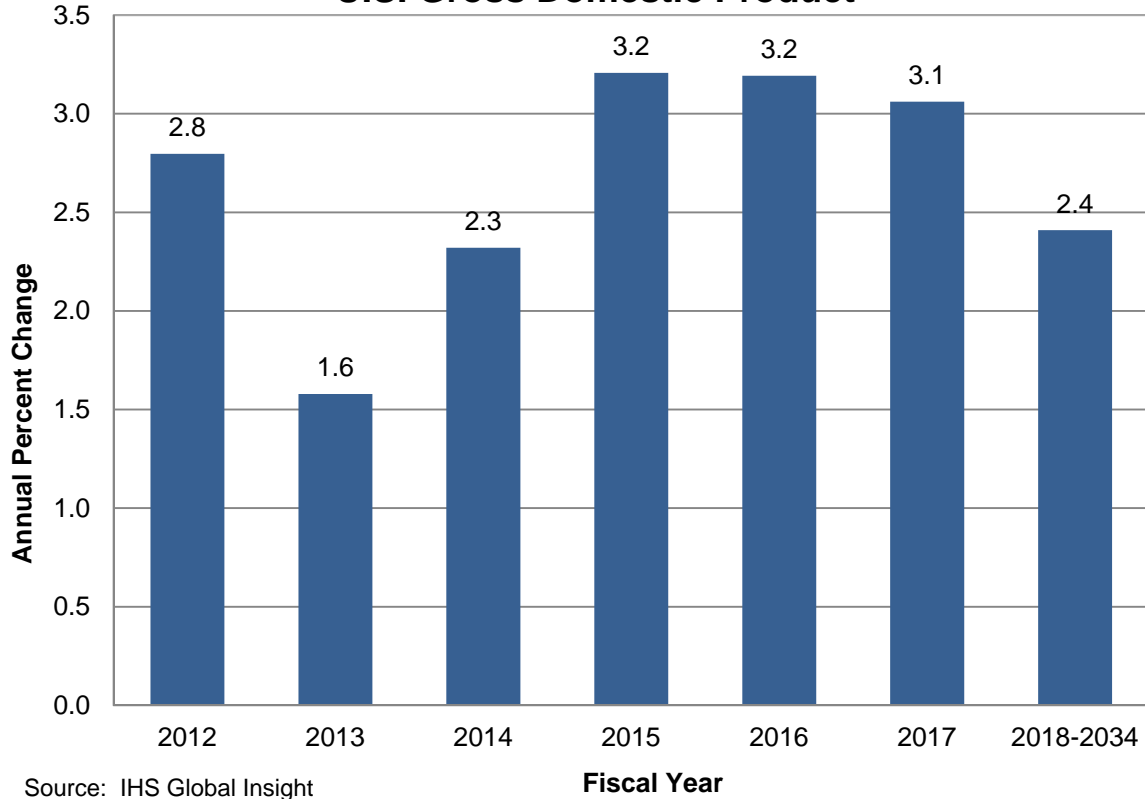
U.S. Gross Domestic Product Seasonally Adjusted Annual Growth by Quarter



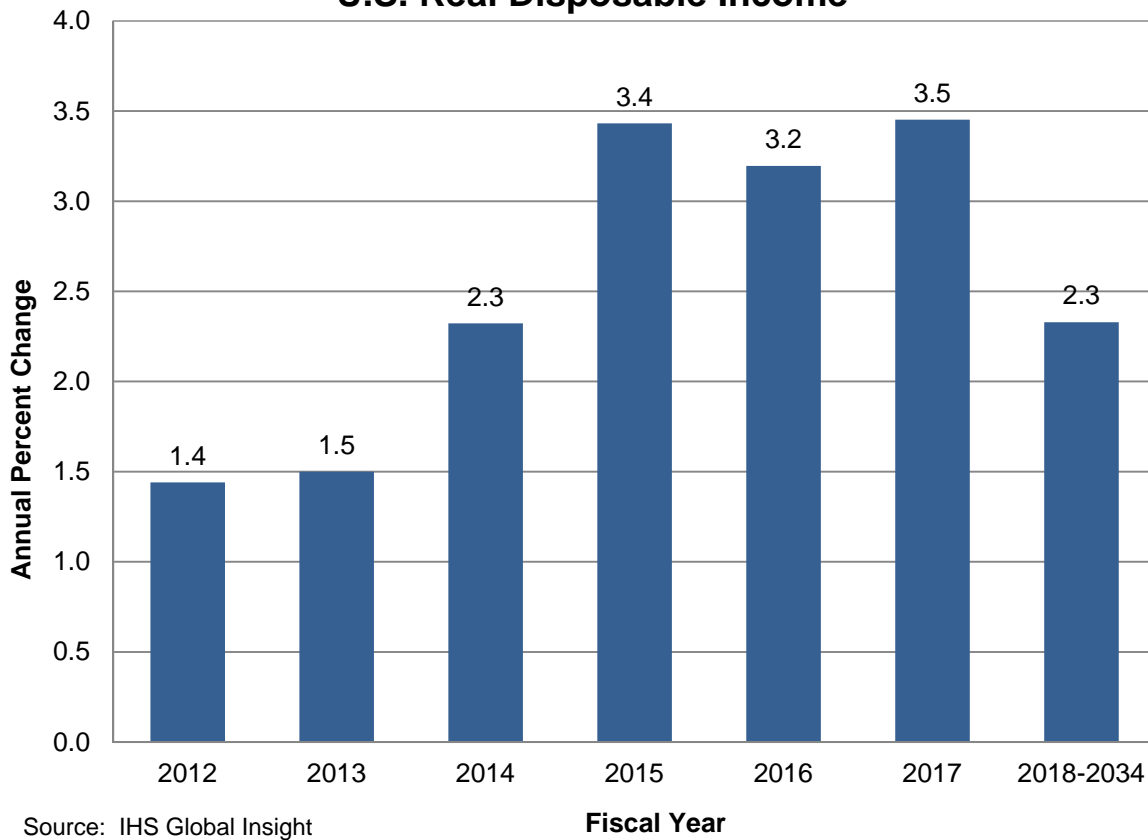
The modest pace of economic recovery has been most evident in the nation's unemployment rate. Since peaking at 9.9 percent in the fourth quarter of FY 2009, the unemployment rate has come down gradually, dropping to 7.5 percent in the fourth quarter of FY 2013. IHS Global Insight is projecting despite the pickup in economic growth, the unemployment rate will drop only modestly in FY 2014, averaging 7.3 percent for the year. The slow fall in the unemployment rate will continue to keep income growth in check. Real disposable income (income after taxes) increased an estimated 1.5 percent in 2013. The recovery in real disposable income is projected to continue with increases of 2.3 percent in 2014 and 3.4 percent in 2015 as unemployment falls and the role of taxes in any long term fiscal solution becomes clearer.

In the medium term, (the four year period between 2015 and 2019), U.S. economic growth is projected to average 3.0 percent per year with rates ranging between 2.9 and 3.2 percent. Income growth picks up during the same period averaging 3.2 percent per year. For the balance of the forecast period, both U.S. real GDP growth and real income growth slow to around 2.4 percent annually. The long-term stability of U.S. economic growth depends on sustained growth in the workforce and capital stock along with improved productivity and competitiveness.

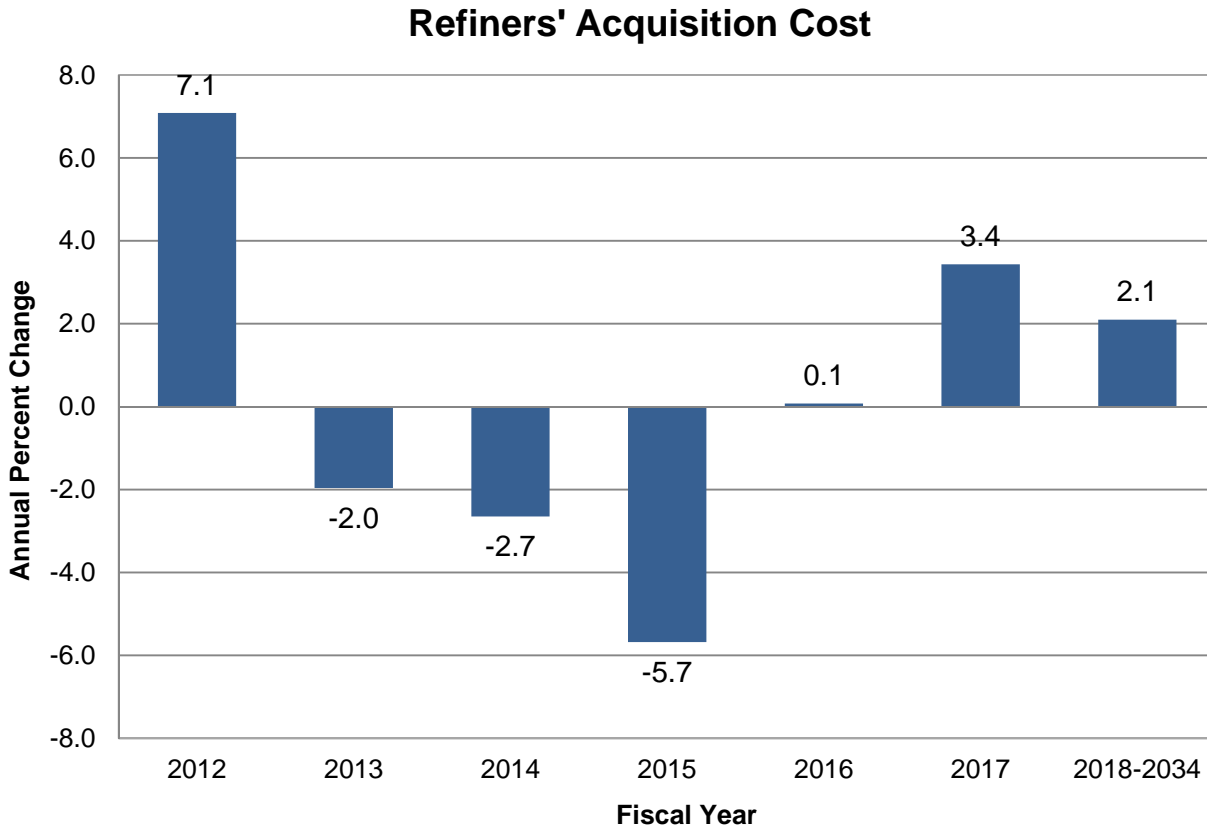
U.S. Gross Domestic Product



U.S. Real Disposable Income



After the price of oil decreased by 2.0 percent in 2013, IHS Global Insight projects the price, as measured by the Refiners' Acquisition Cost, to fall slightly to \$98 per barrel in 2014 (down 2.7 percent from 2013). Oil prices are forecast to decline to around \$92 to \$93 per barrel by 2015/16 and then gradually increase to \$118 per barrel by 2025. For the remainder of the forecast period, oil prices are projected to grow at the same rate as general inflation, reaching \$139 per barrel by 2034.



Source: IHS Global Insight

Inflation continues to remain in check as energy prices fall in 2013 and 2014. After increasing 1.6 percent in FY 2013, the inflation rate (as measured by the CPI), is projected to rise 1.5 percent and 1.6 percent in 2014 and 2015, respectively. After 2015, consumer price inflation is projected to grow between 1.9 and 2.2 percent per year for the balance of the forecast.

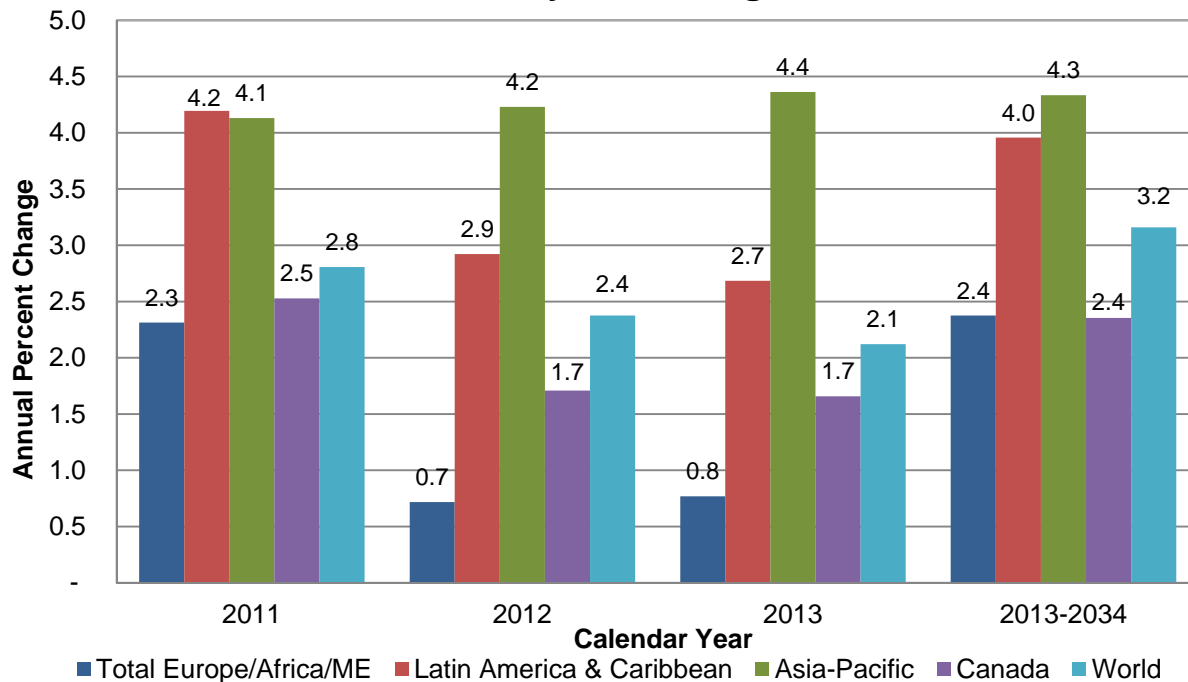
To reflect the uncertainty in the projection of economic growth, the FAA Aerospace Forecast uses high and low economic growth cases along with the base forecast. The optimistic and pessimistic economic growth cases are based on optimistic and pessimistic scenarios from IHS Global Insight's January 2014 U.S. economic forecast and go out to 2023. The optimistic case sees a successful and partisan-free debt ceiling increase, a credible plan to address sovereign-debt issues in Europe, faster foreign economic growth, along with faster employment growth and sustained improvements in the housing sector. Real GDP growth between 2013 and 2023 in the optimistic case averages 3.3 percent annually compared to 2.7 percent in the base case. The pessimistic case assumes partisan politics turn the task of raising the debt ceiling into a political crisis and assumes that in the face of uncertainty, cutting

spending is the best solution. In addition, the Eurozone crisis intensifies reducing demand for U.S. exports. The private sector retrenches and the housing market slows down, and the U.S. economy continues with growth below 1.5 percent in 2014-15 before finally picking up. Real GDP growth in the pessimistic case averages 2.1 percent annually between 2013 and 2023, 0.6 percentage points lower than the base case. Further details about the high and low scenarios can be found in Appendix A.

World Economy

After weathering the first contraction in global GDP since the Great Depression, a deepening recession in Europe and political stalemates in the U.S. over what to do with the U.S. federal budget, worldwide economic activity is estimated by IHS Global Insight to have expanded by 2.1 percent in 2013, down from 2.4 in 2012. The advanced economies (U.S., Canada, Western Europe, Australia, New Zealand, and Japan) posted growth in output ranging from a low of -0.2 percent to a high of 2.3 percent. The emerging market economies grew 4.7 percent, 0.1 points lower than in 2012 with the economy of China up 7.7 percent, India up 4.6 percent, Brazil up 2.5 percent, and Russia up 1.7 percent. In 2014, economic growth is projected to accelerate to 3.0 percent as the headwinds of the past few years, deleveraging in the private sector and public sector austerity begin to ease. While growth in the U.S. and in the emerging market economies edges up, the recovery in Europe continues to be weak, especially in Greece, Italy, and Spain. Beyond 2014 for the balance of the forecast period world real GDP is projected to increase an average of 3.2 percent per year.

Real Gross Domestic Product by World Region



Source: IHS Global Insight website, GDP Components Tables (Interim Forecast, Monthly), Release date 12 Sept 2013

The Asia/Pacific and Latin America/Caribbean regions will continue to have the world's highest economic growth rates. These regions are expected to see their economic activity grow at annual rates of 4.3 and 4.0 percent a year, respectively, over the forecast period (2014-2034).

China, which became the world's second largest economy by 2013 (surpassing Japan) is projected to grow 6.1 percent a year, while India, projected to see its GDP almost quadruple in size, is growing at an average rate of 6.7 percent a year during the forecast period. In contrast, Japan grows at just 0.9 percent a year over the forecast horizon as structural impediments, and an aging population continues to limit growth¹⁰.

¹⁰ IHS Global Insight, GDP Components Tables (Interim Forecast, Monthly), Release date 12 September 2013

AVIATION TRAFFIC AND ACTIVITY FORECASTS

Total traffic and activity forecasts for commercial air carriers (the sum of mainline and regional carriers) are presented in Tables 5 through 9. These tables contain year-to-year historical data and forecasts.

Mainline air carrier traffic and activity forecasts and the forecast assumptions are displayed in Tables 10 through 18, 21, and 23. These tables contain year-to-year historical data and forecasts.

Regional carrier forecasts and assumptions are found in Tables 24 through 27. These tables provide year-to-year historical and forecast data.

Tables 19 and 20 provide year-to-year historical and forecast data for cargo activity. Table 22 provides year-to-year historical and forecast data for the cargo jet fleet.

General aviation forecasts are found in Tables 28 through 31. These tables provide year-to-year historical data and forecasts.

Tables 32 through 34 provide forecasts of aircraft activity at FAA and contract facilities.

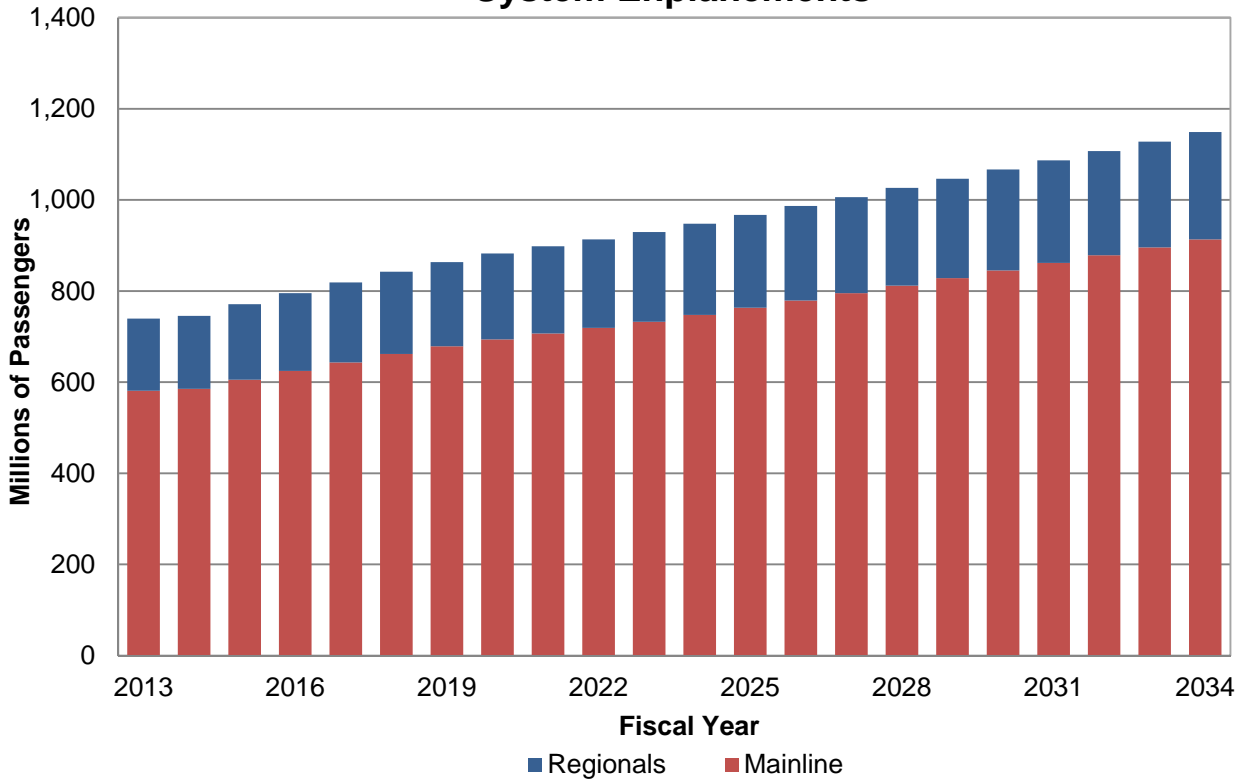
Commercial Aviation Forecasts

System capacity is projected to increase modestly (up 1.5 percent) in 2014. In the domestic market, mainline carrier capacity expanded only slightly (1.3 percent) in 2013 but is projected to grow at an even slower rate (up 0.8 percent) in 2014, while capacity for the regional carriers is projected to post its first increase since FY 2011 (up 2.2 percent). In the international sector, capacity is forecast to increase slowly in the Atlantic and Pacific markets, respectively, and increase modestly in the Latin market -- resulting in an overall international capacity increase of 2.7 percent.

Passenger demand shows minimal growth in 2014 with system RPMs forecast to grow 1.4 percent, the same rate as in 2013. An upturn in growth is projected for the 2015-19 period, coincident with faster economic growth as system RPMs and passengers increase at an average annual rate of 3.4 and 2.9 percent, respectively. Over the same time period, system capacity growth averages of 3.3 percent per year. For the overall forecast period (2014-34), system capacity is projected to increase an average of 2.7 percent a year. Supported by a growing U.S. and world economy, system RPMs are projected to increase 2.8 percent a year, with regional carriers (up 2.3 percent a year) growing slower than mainline carriers (up 2.8 percent a year). System passengers are projected to increase an average of 2.2 percent a year, with mainline carriers growing at a higher rate (up 2.3 percent a year) than their regional counterparts (up 1.9 percent). By 2034, U.S. commercial air carriers are projected to fly 1.75 trillion ASMs and transport 1.15 billion enplaned passengers a total of 1.47 trillion passenger miles.

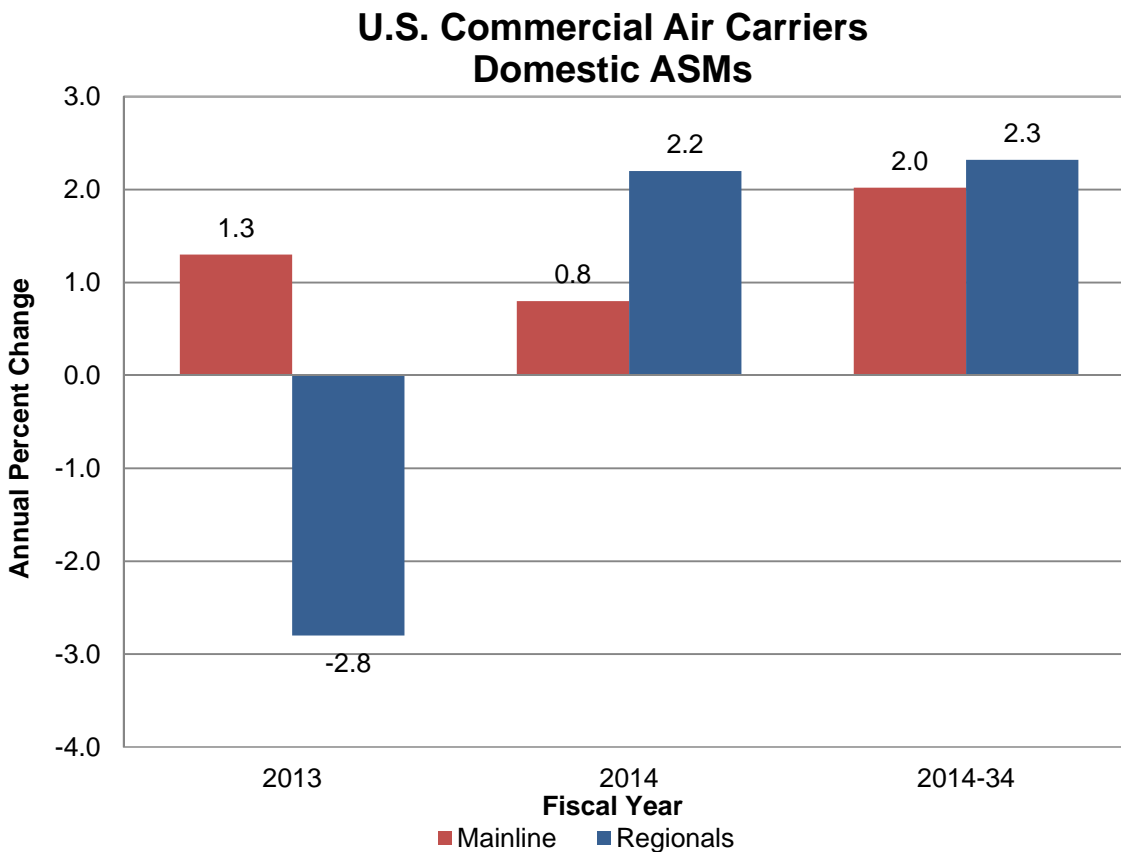
Planes will remain crowded, with load factors projected to grow moderately during the early years of the forecast period then tapering during the mid to latter years to 83.8 percent in 2034 (up 0.7 points compared to the beginning of the forecast period in 2014). Passenger trip length is forecast to increase by more than 141 miles over the forecast period to 1,276 miles in 2034 (up 7 miles annually). The growth in passenger trip length reflects the faster growth in the relatively longer international and domestic trips as compared to shorter-haul flights.

U.S. Commercial Air Carriers System Enplanements

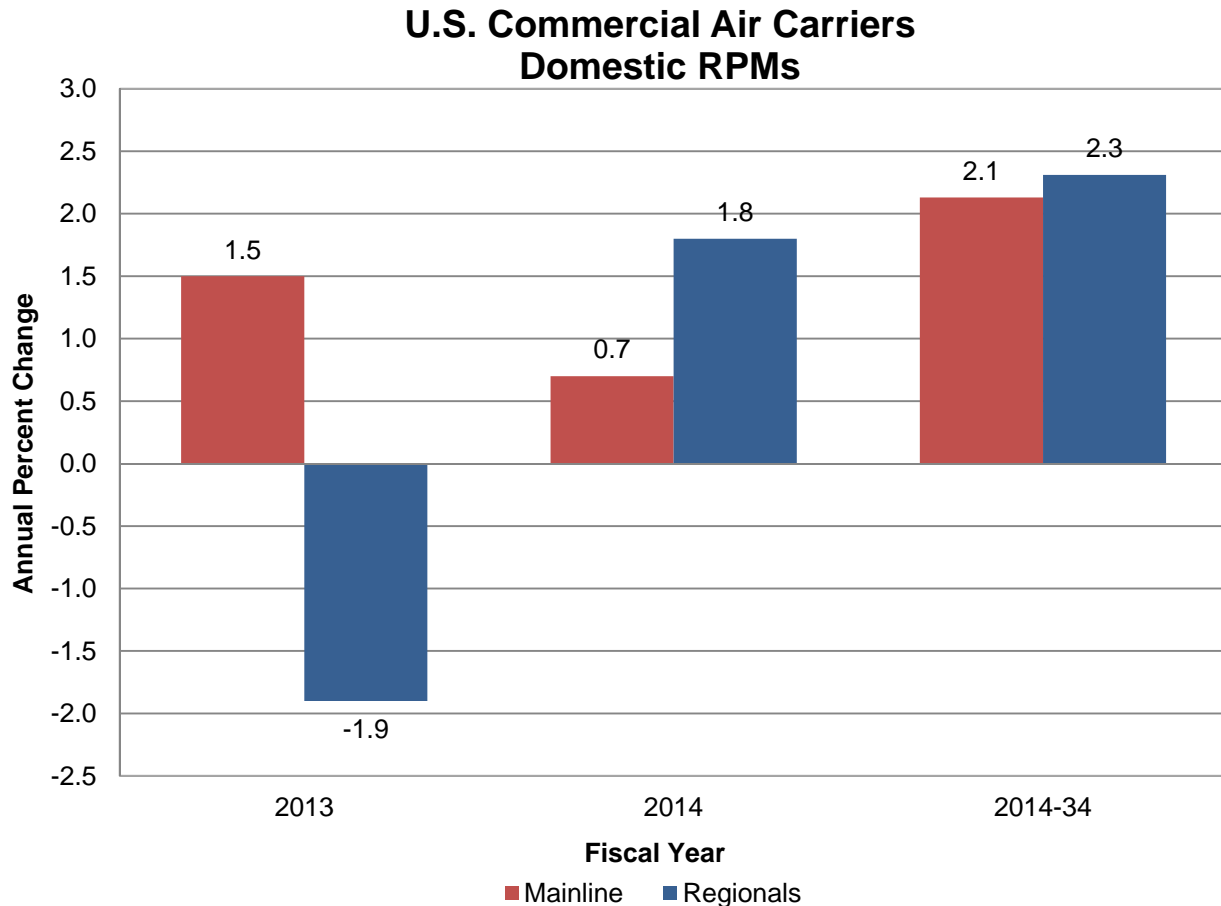


Domestic Markets

After expanding slightly in FY 2013 (up 0.8 percent), domestic capacity is projected to increase by 1.0 percent in 2014. Mainline carrier capacity is forecast to be up 0.8 percent while regional carrier capacity is projected to increase by 2.2 percent, the first increase since 2011. Domestic commercial carrier capacity growth picks up in 2015-2019 period (up 2.7 percent per year) as U.S. economic growth accelerates, with mainline carriers growing slower than regional carriers, 2.6 percent versus 3.0 percent. For the entire forecast period (2014-2034), overall domestic capacity is projected to increase at an average annual rate of 2.1 percent, slower than economic growth. Mainline carriers are projected to grow at an annual rate of 2.0 percent while regional carriers are projected to grow slightly faster at 2.3 percent a year.



Although economic growth is picking up in the U.S., U.S. carrier domestic RPM growth in 2014 is projected at 0.9 percent. Traffic growth is projected to be sluggish throughout the year as carriers continue to keep capacity growth in check. Mainline carrier RPMs are projected to increase by 0.7 percent during 2014, while regional carrier RPMs are projected to increase at a faster rate (1.8 percent). Traffic growth improves over the 2015-19 period with annual RPM growth averaging 2.9 percent as the economic recovery gains steam. For the balance of the forecast period (2019-2034) modest economic growth and falling real yield drive domestic RPM growth of 1.9 percent a year. Over the entire forecast period (2014-2034), domestic RPMs grow an average of 2.2 percent a year with mainline carriers growing more slowly than the regional carriers (2.1 percent a year versus 2.3 percent a year, respectively).



Enplanements are forecast to grow slightly (up 0.6 percent) in 2014 after a 0.1 percent increase in 2013. Similar to RPMs, passenger growth is expected to pick up in the 2015-2019 period (up 2.7 percent a year) as the recovery gains momentum and then average 1.6 percent per year for the period 2019-2034. Over the entire forecast period, domestic enplanements are projected to grow at an average annual rate of 1.9 percent with mainline and regional carriers growing at the same rate.

The continued modest recovery in demand, coupled with restricted capacity growth, provided pricing power for the mainline carriers during 2013, with nominal yield increasing 2.4 percent (up 0.8 percent in real terms). In spite of slow demand growth, continued tight capacity will provide support for higher fares in 2014, with an increase in nominal yield of 3.0 percent (1.5 percent in real terms). For the entire forecast period, nominal yield is projected to increase at an average rate of 1.4 percent a year, while in real terms it is projected to decline at an average rate of 0.5 percent a year. The decline in real yield over the forecast period assumes technological improvements, competition between carriers, and the increasing convergence of cost structures between network carriers and their low-cost counterparts. The convergence in cost structures between the carrier groups arises from gains in productivity as network carriers retire fuel inefficient aircraft and hold the line on labor costs while existing low-cost carriers contend with aging fleets, maturing work forces, and larger and more complex networks.

Domestic commercial carrier activity (departures) at FAA air traffic facilities is projected to grow more slowly than passenger traffic over the forecast period (1.3 percent per year for departures versus 2.2 percent for RPMs). This reflects increased carrier efficiencies in three operational measures: aircraft size, load factor, and trip length.

Overall domestic aircraft size increased by 1.6 seats to 124.9 in 2013 as a result of the combination of the increased mainline carrier domestic capacity share and increases in the aircraft size of the mainline carrier group. Mainline carrier aircraft size increased 1.2 seats with the retirement of older aircraft (i.e. MD-80's, 737-300/400/500, and 757's). Regional aircraft size remained unchanged despite the retirement of 50-seat jet aircraft as larger 70-90 seat jet aircraft entered the fleet. Domestic seats per aircraft are forecast to increase in 2014 (up 1.3 seats) as both mainline and regional carrier aircraft will increase in size. Over the balance of the forecast (2015-2034), domestic seats per aircraft are projected to gradually increase to 134.6 seats by 2034, an average increase of 0.4 seats per year.

The FAA's projection of domestic carrier average aircraft size is greatly influenced by carrier fleet plans, publicly known aircraft order books, and the FAA's expectations of the changing domestic competitive landscape. In the near-term (through 2015), the forecast incorporates several assumptions: 1) mainline carriers desire to constrain ASM capacity growth; 2) the retirement of older inefficient aircraft (many of which are narrow-body); 3) the shifting of wide-body and larger narrow-body aircraft to international services, and 4) growing use of 70-90 seat regional jet aircraft.

In the longer-term, network carriers will replace their older narrow-body aircraft (A320's/B757-200/300) in their domestic route networks with next generation, narrow-body aircraft like the A320 Neo and the 737 Max. The use of smaller aircraft, like the 100-seat Embraer 190, to supplement carrier route structures will be limited. The use of the next generation, narrow-body aircraft will allow mainline carriers to better serve their customers by more closely matching supply (the number of seats) with demand (the number of passengers), and improve profitability through lower operating costs.

Mainline carrier domestic aircraft size increased in 2013 by 1.2 seats to 153.9 seats, and is projected to increase by another 1.2 seats in 2014. Domestic aircraft size for mainline carriers is projected to increase by 0.3 seats in 2015 and then gradually increase for the balance of the forecast. Overall, average aircraft size for the mainline group will increase by 7.5 seats between 2013 and 2034, going from 153.9 to 161.4.

Regional carrier aircraft size flown domestically is projected to grow at a faster pace than that of the mainline carriers. The faster growth in aircraft size for regional carriers is stimulated by continued deliveries of 70 to 90 seat regional jet aircraft that are entering the fleet as well as reductions in the 50-seat and under jet fleet. The larger share of 70 to 90-seat regional jets in the fleet, coupled with 50-seat jet and small turboprop retirements over the next few years, increases the average seating capacity of the regional fleet from 56.1 seats in 2013 to 58.3 seats by 2016. Over the course of the forecast, seats per aircraft for regional carriers increases an average of 0.5 seats per year to 66.6 seats in 2034. The changing aircraft fleet mix is narrowing the gap between the size and aircraft types operated by the mainline and regional carriers.

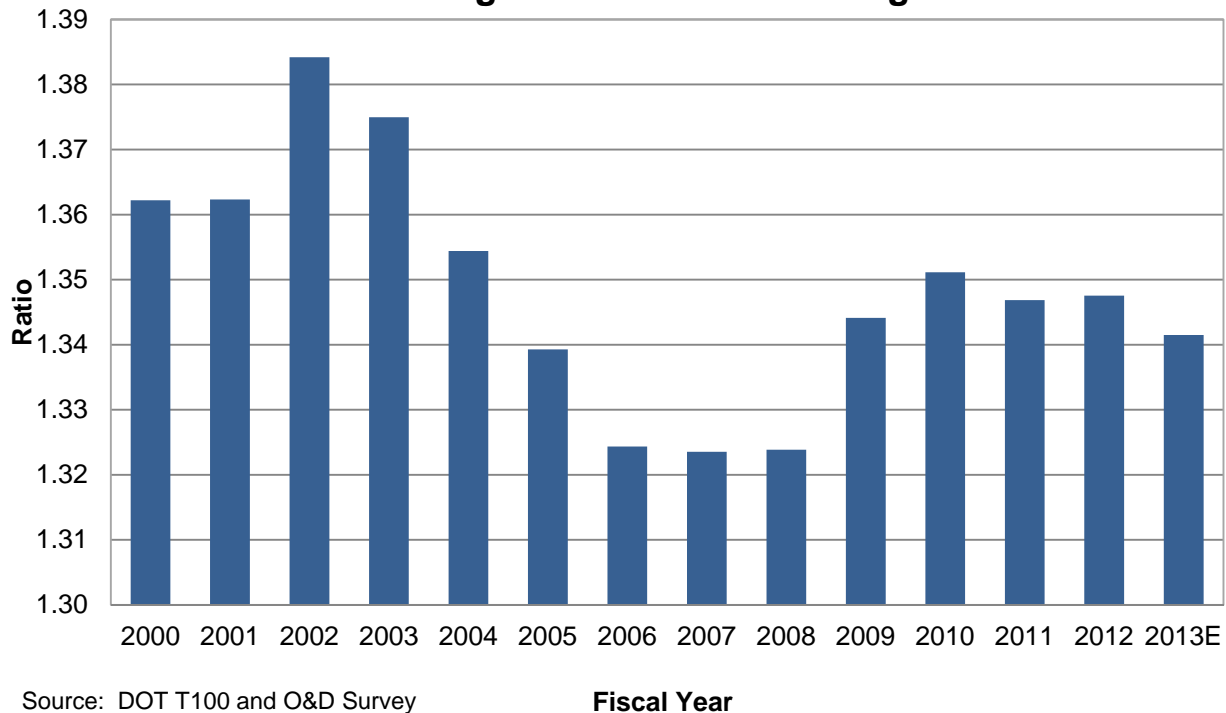
The commercial carrier domestic load factor increased 0.3 points during FY 2013 to an all-time high of 83.5 percent, with record load factors posted by the mainline and regional carrier groups. The mainline carrier group posted a load factor of 84.2 percent, up 0.2 percentage points from 2012. Regional carrier load factor increased 0.7 points to 78.4 percent. In 2014, the domestic load factor is forecast to decrease 0.1 points to 83.4 percent as mainline carrier load factor remains unchanged while regional carrier load factor decreases by 0.3 percentage points. Thereafter, the commercial carrier domestic load factor gradually rises to 84.7 percent by 2034.

In 2013 the average domestic passenger trip length increased by 8.8 miles to 892.4 miles in total, after increasing by 3.5 miles in 2012. Passenger trip length is forecast to increase by 2.6 miles in 2014 as carriers continue to restructure their networks and realign capacity. After 2014, trip length is projected to remain relatively stable for a number of years before steadily increasing from 2018 onwards, reaching 937.9 miles by 2034. The increase in trip length reflects longer trips flown by the mainline and regional carrier group. Mainline carrier trip length increases as service in thinner, relatively shorter haul markets is dropped or relinquished to regional partners and replaced with longer domestic trips. Regional carrier trip length increases as flying in shorter haul markets is abandoned and/or reduced as more of the larger 70 and 90-seat regional jets continue to penetrate thinner longer-haul markets previously served with mainline equipment.

Another key factor in predicting aviation activity relative to passenger demand is the level of connecting versus non-stop (origin-destination) traffic. However, as the current cycle of U.S. airline industry restructuring unfolds and hub structures change, the impact on local communities and airport activity levels can vary significantly.

The FAA analyzes the ratio of passenger enplanements to origin-destination (O&D) passengers over time to identify changes in connecting versus non-stop traffic. This ratio is an indicator of the tendency of the average passenger to connect during a typical journey. The closer the ratio is to 1.0, the more passengers fly on a point-to-point routing. As the chart below shows, the overall ratio for the U.S. domestic industry peaked in 2002, and then trailed downward to its lowest level (1.32 enplanements for every O&D passenger) by 2007. The decline in the ratio during this six year period is characterized by a drop in connectivity by the network carriers and a rising passenger share for the low-cost carriers. As demand for air travel fell during the great recession and fuel costs skyrocketed, the ratio jumped up to over 1.34 in 2009. Since then the ratio has been in a narrow range between 1.34 and 1.35 enplanements for every O&D passenger, but the 2013 figure was the lowest since 2008. The FAA's forecast recognizes the changing pattern of domestic traffic connectivity and these trends are captured in the forecast's passenger enplanement totals.

U.S. Commercial Carriers Domestic Enplanements per Origin-Destination Passenger



International Markets

U.S. and Foreign Flag Carriers

The FAA provides forecasts of total international passenger demand¹¹ for travel between the United States and three world travel areas: Atlantic, Latin America (including Mexico and the Caribbean), and Asia/Pacific, as well as for U.S.–Canadian transborder traffic. These forecasts are based on historical passenger statistics provided by the U.S. Customs and Border Protection¹² and Transport Canada, and on regional world historical data and economic projections from Global Insight, Inc.

Total passenger traffic between the United States and the rest of the world is estimated to total 183.6 million in CY 2013, 4.4 percent higher than in 2012. Passenger demand growth slows in 2014 (up 3.7 percent) but picks up again in 2015 (up 5.3 percent) as the U.S. and world economic recovery solidifies. For the balance of the forecast period, stable worldwide economic growth leads international passengers to grow at an average rate of 4.2 percent a year, totaling 434.8 million in 2034.

¹¹ The sum of U.S. and foreign flag carriers.

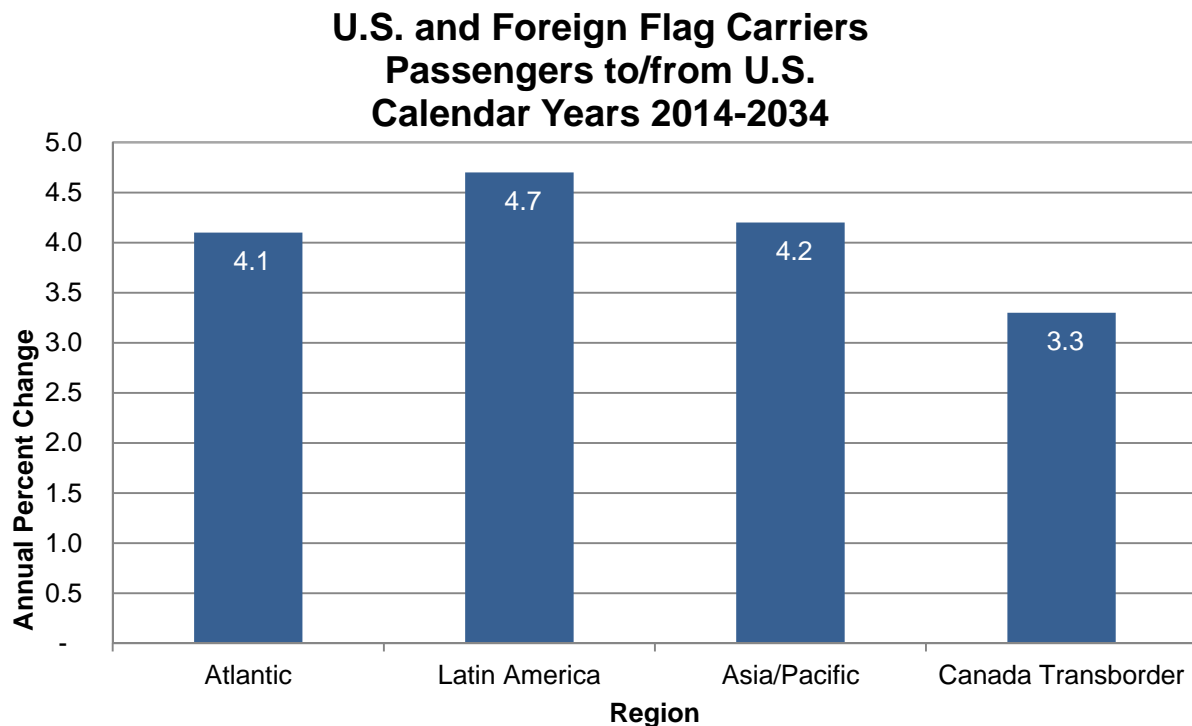
¹² Customs and border protection data is processed and released by the Department of Commerce.

In the Latin America region, sustained economic growth drives passenger growth to an average rate of 4.7 percent a year over the entire forecast period (2014-2034). The highest growth is projected for Brazil (average annual growth of 6.0 percent) while the largest market in the region, Mexico, grows at an average of 4.6 percent a year. The slowest rates of growth are projected to occur in the Bahamian and Jamaican markets (averaging growth of 0.2 and 2.8 percent a year, respectively).

Emerging economies in the Asia-Pacific market boost passenger demand an average of 4.2 percent per year. Taiwan, South Korea, India and China (passenger growth of 4.5, 4.5, 5.2 and 6.5 percent a year, respectively) are forecast to be the fastest growing markets in the region. Growth in the Japan market (the largest and most established in the region) is projected to be well below the regional average at 2.9 percent a year.

In the more mature Atlantic market, the Open Skies agreement between the European Union and the United States along with competition between global airline alliances helps fuel passenger growth of 4.1 percent a year over the forecast period. Over the 20-year forecast horizon, average annual passenger growth in the top four Atlantic country specific markets, the United Kingdom, Germany, France and the Netherlands, is 3.9, 4.6, 3.2, and 3.9 percent, respectively.

Growth in the Canadian transborder market is forecast to be higher than that of the domestic U.S. market (2.0 percent), averaging 3.3 percent a year over the forecast period.

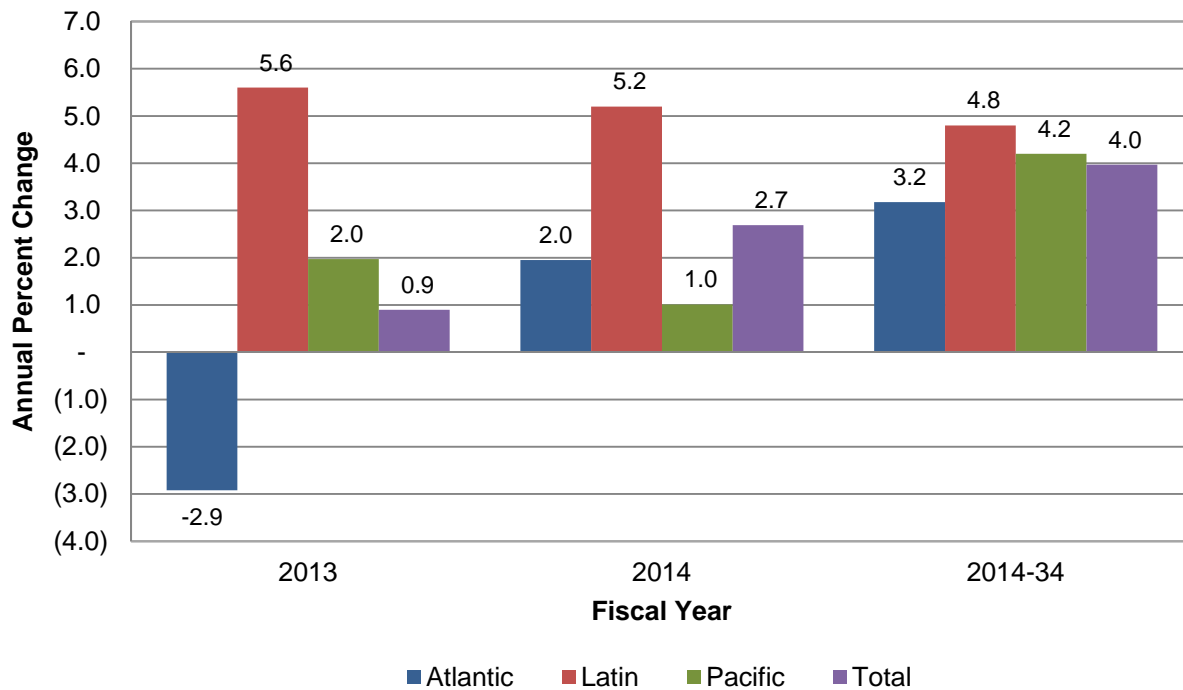


Source: US Customs & Border Protection data processed and released by Department of Commerce; data also received from Transport Canada

U.S. Flag Air Carriers

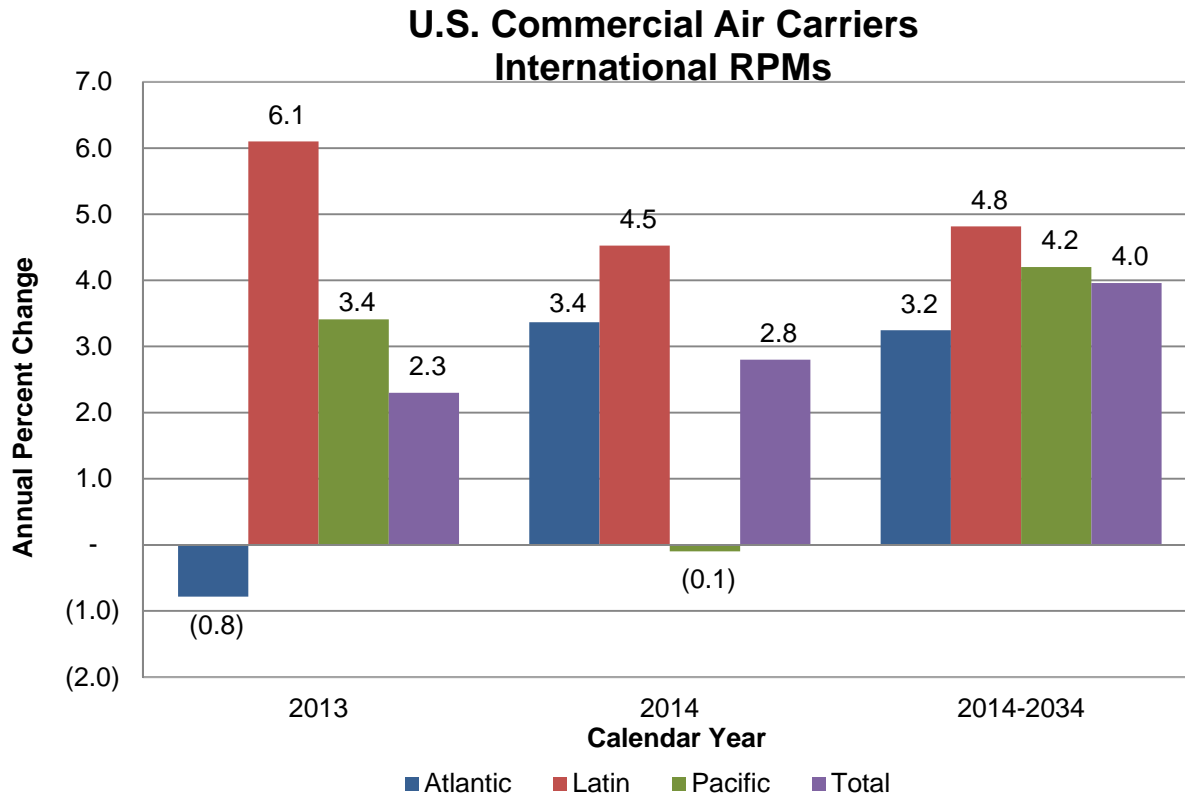
International U.S. commercial air carrier capacity grew slowly in 2013, up 0.9 percent from 2012. The Atlantic market continued to shrink (down 2.9 percent) after declining 4.4 percent in 2012. The Latin America market posted a solid 5.6 percent increase while the Pacific market showed more modest growth, up 2.0 percent. In 2014, moderate demand and increasing competition between global alliances is expected to boost total international capacity by 2.7 percent as all markets are expected to grow. The fastest growth is projected for the Latin market (up 5.2 percent), followed by the Atlantic (up 2.0 percent – the first increase since 2011), and the Pacific (up 1.0 percent). System-wide capacity is projected to accelerate in 2015 (up 4.8 percent), fueled by stronger economic growth projected for all world regions, and is projected to average 3.9 percent a year for the remainder of the forecast period. Moderate growth over the forecast period reflects favorable U.S. and world economic activity as it recovers from the global contraction.

U.S. Commercial Air Carriers International ASMs



U.S. commercial air carrier international RPMs and enplanements increased 2.3 and 2.6 percent, respectively, in 2013. Increases in RPMs for the Latin market (up 6.1 percent) and the Pacific market (up 3.4 percent) offset a decrease in the Atlantic market (down 0.8 percent). In 2014, U.S. carrier international RPMs are expected to increase by 2.8 percent as increases in the Latin American market (up 4.5 percent), and in the Atlantic market (up 3.4 percent) more than offset a slight decline in the Pacific market (down 0.1 percent). For the balance of the forecast, RPMs increase an average of 4.0 percent a year with the fastest growth in the Latin region (up 4.7 percent).

International enplanement growth for 2014 is projected to be 2.8 percent as solid growth in both the Latin (up 3.8 percent) and Atlantic (up 3.1 percent) markets offset a slight decline in the Pacific region (down 0.9 percent) where a slowdown in both China and India's economic growth impacts demand. Enplanement growth is projected to rebound to 4.4 percent in 2015 with all regions showing gains. Over the balance of the forecast period (2016-2034), enplanements are forecast to increase an average of 3.8 percent a year with the fastest growth in Latin and Pacific markets (up 4.3 and 4.0 percent a year, respectively).



The growth in U.S. carrier international passengers over the period 2014-2034 (3.9 percent a year) compares favorably to the growth in overall international passengers (4.2 percent a year, including the U.S.-Canada transborder market). Forecasts of international demand assume U.S. and foreign flag carriers will benefit from improving economic activity in both the United States and world markets.

International load factor for U.S. commercial carriers was 82.6 percent in 2013, a sharp increase of 1.2 points from 2012. Load factor is expected to remain steady in 2014 as capacity increases in line with demand. International load factor is projected to remain steady around 82.5 percent over the balance of the forecast period to 2034 as traffic growth matches capacity growth in all three world markets.

International passenger real yields for U.S. mainline carriers were down 1.3 percent in 2013 as decreases in the Pacific market (down 5.9 percent) and in the Latin market (down 2.2 percent) offset an increase in the Atlantic market (up 1.9 percent). In 2014 international real yield rises by 0.1 percent as strengthening demand in the Atlantic market offsets excess capacity in the

Latin market and weak demand in the Pacific market. For the remainder of the forecast period, real yield decreases an average of 0.6 percent a year. In nominal terms, international yields are forecast to increase 1.6 percent in 2014, and then grow at an annual rate of 1.4 percent over the remainder of the forecast. The decline in real yields assumes competitive pressures (including established and relatively new international carriers) and technological improvements will hold the line on fare increases.

Commercial Air Carriers – Air Cargo

Historically, air cargo activity tracks with GDP. Additional factors that affect air cargo growth are fuel price volatility, movement of real yields, and globalization. Significant structural changes have occurred in the air cargo industry; among these are air cargo security regulations by the FAA and TSA, maturation of the domestic express market, a shift from air to other modes (especially truck), use of all-cargo carriers (e.g., FedEx) by the U.S. Postal Service to transport mail, and the increased use of mail substitutes (e.g. e-mail, cloud-based services).

The forecasts of Revenue Ton Miles (RTMs) are based on several assumptions specific to the cargo industry. First, security restrictions on air cargo transportation will remain in place. Second, most of the shift from air to ground transportation has occurred. Finally, long-term cargo activity will be tied to economic growth.

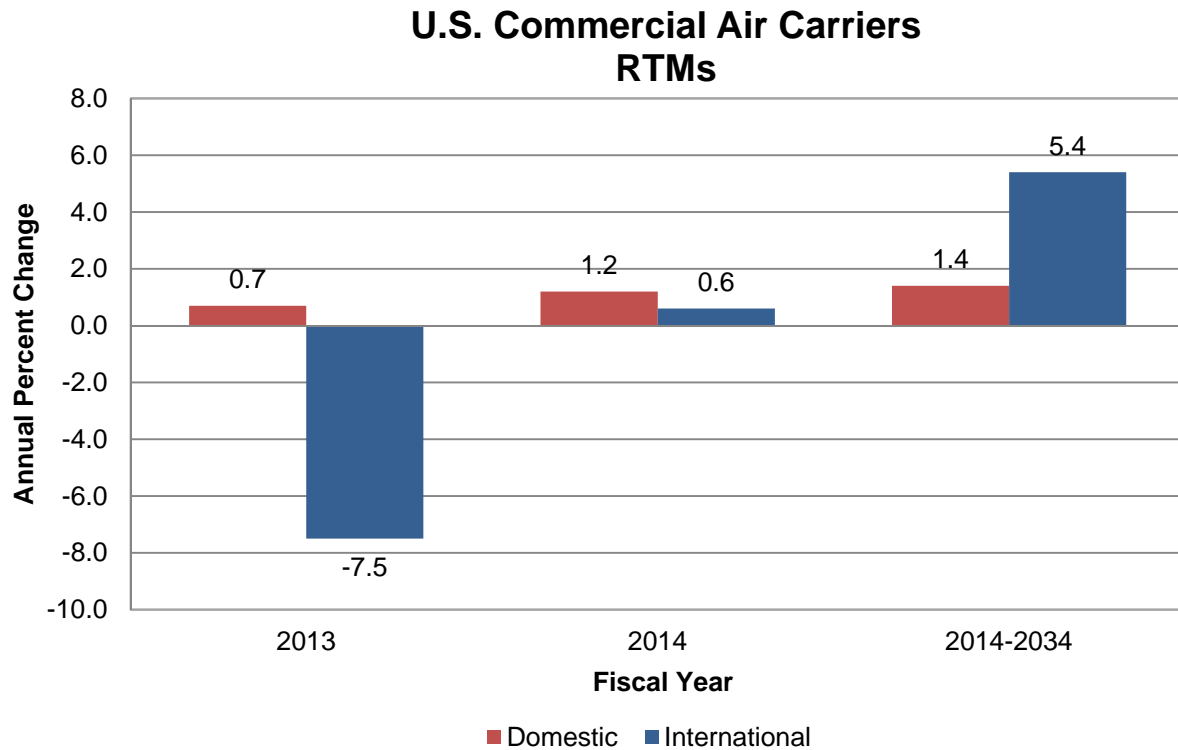
The forecasts of RTMs were based on models that link cargo activity to GDP, real fuel prices, and real personal consumption expenditures (PCE). Forecasts of domestic cargo RTMs were developed with real U.S. PCE and real fuel prices as the primary drivers. Projections of international cargo RTMs were based on growth in world GDP, adjusted for inflation. The distribution of RTMs between passenger and all-cargo carriers was forecast based on an analysis of historic trends in shares, changes in industry structure, and market assumptions.

Total RTMs shrank by 4.8 percent in 2013 but are forecast to grow slightly (up 0.8 percent) in 2014. Driven by steady U.S. and world economic growth, total RTMs are projected to increase at an average annual rate of 4.2 percent for the balance of the forecast period.

Domestic cargo RTMs increased 0.7 percent in 2013 and are forecast to grow 1.2 percent in 2014 as the U.S. economic recovery strengthens. Between 2014 and 2034, domestic cargo RTMs are forecast to increase at an average annual rate of 1.4 percent.

The freight/express segment of domestic air cargo is highly correlated with capital spending. Thus, this segment's growth will be tied to growth in the economy. The mail segment of domestic air cargo will be affected by price and substitution (e.g. e-mail).

The all-cargo carriers have increased their share of domestic cargo RTMs flown from 70.1 percent in 2000 to 88.8 percent in 2013. This is because of the shrinkage of the domestic freight/express business for passenger carriers as they have responded to the substantial shocks to the aviation system during this time. Shrinking networks, elimination of unprofitable flying, and consolidation have reduced opportunities for growth in their freight/express business. The all-cargo share is forecast to grow to 90.4 percent by 2034 based on increases in capacity for all-cargo carriers and ongoing security considerations.



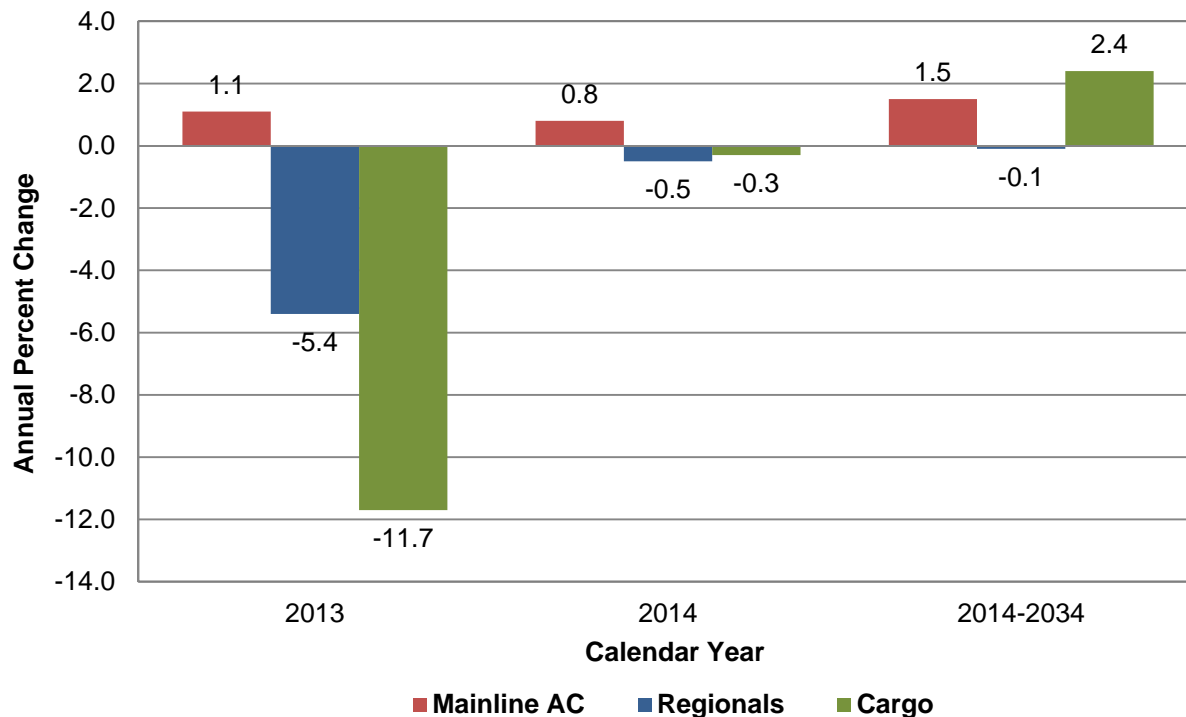
International cargo RTMs fell for a second year in a row, down 7.5 percent in 2013 as fallout from the European debt crisis and a slowdown in China's economic growth slowed worldwide trade. They are projected to grow 0.6 percent in 2014 as global trade growth resumes. For the forecast period (2014-34) international cargo RTMs are forecast to increase an average of 5.4 percent a year based on projected growth in world GDP.

The share of international cargo RTMs flown by all-cargo carriers increased from 50.3 percent in 2000 to 74.6 percent in 2013. Continuing the trend experienced over the past decade, the all-cargo share of international RTMs flown is forecast to increase modestly to 80.9 percent by 2034.

Commercial Aircraft Fleet

The number of commercial aircraft is forecast to grow from 6,727 in 2013 to 8,435 in 2034, an average annual growth rate of 1.1 percent or 81 aircraft annually. The commercial fleet is projected to increase by 17 aircraft in 2014 after shrinking by 184 aircraft in 2013 as the slow recovery in demand and rising fuel prices prompted carriers to prune their fleets. Since 2007, the U.S. commercial airline fleet has contracted by 1,005 aircraft. In comparison, the U.S. commercial fleet contracted by 262 aircraft between 2000 and 2003, the last downturn in aviation.

U.S. Commercial Aircraft Fleet Calendar Years 2013-2034



The number of passenger jets in the U.S. mainline carrier fleet increased by 41 aircraft in 2013 and is projected to rise by 30 aircraft in 2014 as network carriers continue to remove older, less fuel efficient narrow body aircraft. After 2014, the mainline air carrier passenger fleet increases an average of 65 aircraft a year over the remaining years of the forecast period, totaling 5,112 aircraft in 2034. The narrow-body fleet (including E-190's at JetBlue and American Airways) is projected to grow by 41 aircraft annually over the period 2013-2034; the wide-body fleet grows by 22 aircraft a year as the Boeing 787 and Airbus A350's enter the fleet.

The regional carrier passenger fleet is forecast to decrease by 11 aircraft in 2014 as increases in larger regional jets are more than offset by reductions in 50 seat and smaller regional jets and turboprops. After 2014, the regional carrier fleet is projected to decrease by an average of 3 aircraft (-0.1 percent) a year over the remaining years of the forecast period, totaling 2,141 aircraft in 2034. The number of regional jets (90 seats or fewer) at regional carriers is

projected to grow from 1,642 in 2013 to 1,953 in 2034, an average annual increase of 0.8 percent. All of the growth in regional jets over the forecast period occurs in the larger 70 to 90-seat aircraft. During the forecast period, all regional jets of 50 or less seats are removed from the fleet, reflecting the relaxation of scope clauses. The turboprop/piston fleet is expected to shrink from 571 units in 2013 to 188 in 2034. Turboprop/piston aircraft are expected to account for just 8.8 percent of the regional carrier passenger fleet in 2034, down from a 25.8 percent share in 2013.

Cargo large jet aircraft are forecast to increase by 8 aircraft over the next two years (from 740 to 748 aircraft in 2015) after declining by 98 aircraft in 2013 primarily due to retirements of 727-200s and 747-200s by Federal Express, Evergreen, and Southern Air. For the remainder of the forecast period, cargo large jet aircraft at U.S. carriers are forecast to grow at an average annual rate of 2.4 percent to 1,182 aircraft in 2034. The narrow-body, cargo jet fleet is projected to increase by 5 aircraft a year over the 21-year forecast period as older 757's and 737's are converted to cargo service. The wide-body, cargo jet fleet is projected to increase by 16 aircraft yearly.

General Aviation

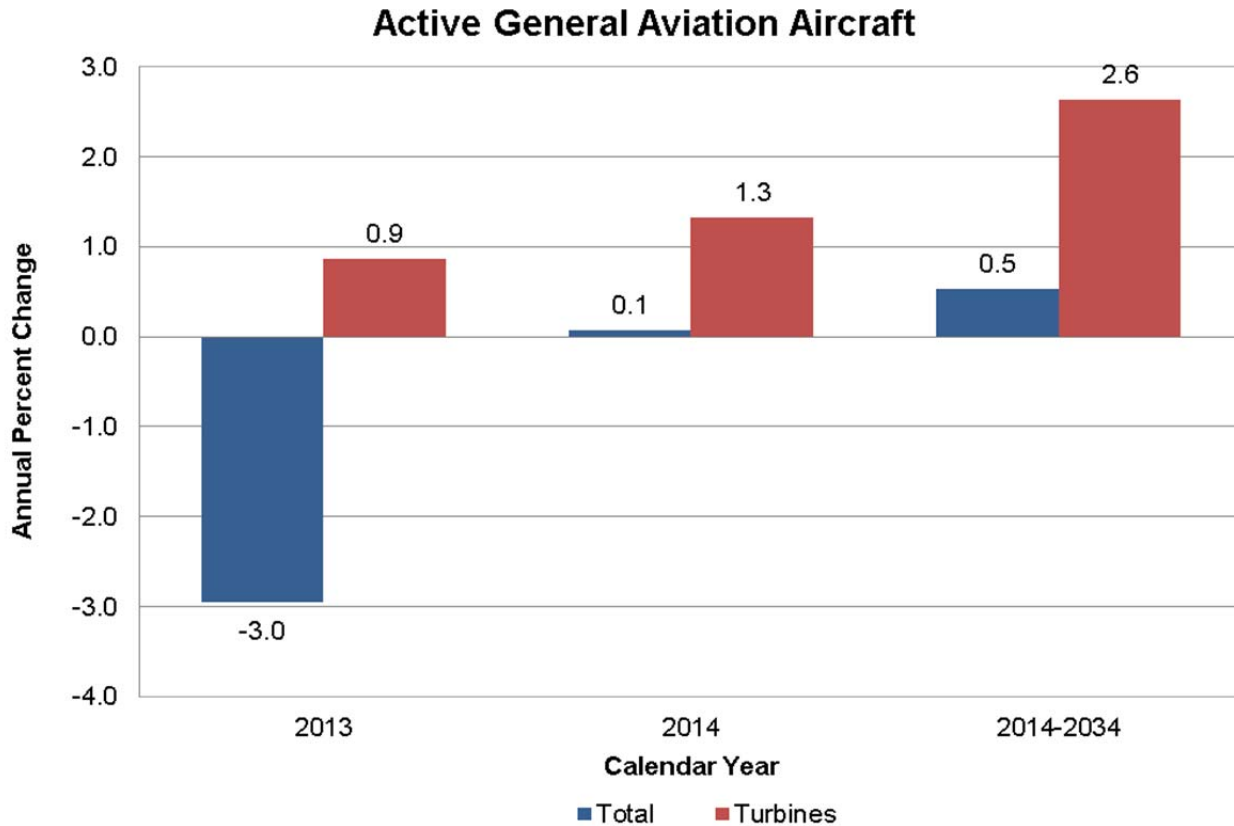
The FAA forecasts the fleet and hours flown for single-engine and multi-engine piston aircraft, turboprops, turbojets, piston and turbine powered rotorcraft, and light sport, experimental and "other" (which consists of gliders and lighter than air vehicles) aircraft. The forecasts are carried out for "active aircraft,"¹³ not total aircraft. The FAA uses estimates of fleet size, hours flown, and utilization from the General Aviation and Part 135 Activity Survey (GA Survey) as baseline figures upon which assumed growth rates can be applied. Beginning with the 2004 GA Survey, there were significant improvements to the survey methodology. Coinciding with the changed survey methodology, large changes in many categories were observed, both in the number of aircraft and hours flown. The results of the 2012 GA Survey are consistent with the results of surveys conducted since 2004, reinforcing our belief that the methodological improvements have resulted in superior estimates relative to those of the past. Thus, they are used as the basis for our forecast. Because results from the GA Survey are not published until the following year, the 2012 statistics are the latest available. As an additional note, the results of the 2011 survey were not available to use. Therefore, estimates of 2011 fleet and hours were based on estimated number of general aviation aircraft in the FAA civil aircraft registration database by the end of CY 2011, and past rates of active aircraft and utilization by type of aircraft and age of the fleet. The 2012 GA Survey recorded partial effect of the 2010 Rule for Re-Registration and Renewal of Aircraft Registration. The complete effect of this Rule, which requires all aircraft registered in the U.S. to re-register within the three-year period from 2011 to 2013, will be noted after the 2013 Survey. In the meanwhile, the 2012 Survey showed that between 2010 and 2012 the number of active GA aircraft went down by 6.4 percent, from 223,370 to 209,034. Assuming a similar decline in 2013 as a result of cleaning up from the Registry inactive aircraft that previously thought to be active, GA active fleet is estimated to have decreased 3.0 percent in 2013 to 202,865. General aviation flight hours for 2013 are estimated based on the active fleet and other activity indicators at 24.0 million, with a decline

¹³ An active aircraft is one that flies at least one hour during the year.

of 1.8 percent from the previous year. Activity forecasts begin in 2014 and continue through 2034.

After growing rapidly for most of the past decade, and then slowing over the past few years, the most recent shipment activity indicates the modest growth continues in the overall general aviation aircraft market. While economic uncertainties still affect the business jet market, the rate of decline slowed down and a recovery is expected in the near term. The forecast calls for robust growth in the long term outlook, driven by higher corporate profits and the growth of worldwide GDP, though at rates slightly lower than those predicted last year. Continued concerns about safety, security, and flight delays keep business aviation attractive relative to commercial air travel. As the industry experts and prior year's survey results report a significant portion of piston aircraft hours are also used for business purposes, we predict business usage of general aviation aircraft will expand at a faster pace than that for personal and recreational use. Increased demand, especially for agricultural use turboprop aircraft also contributes to increased turbine fleet and hours.

The active general aviation fleet is projected to increase at an average annual rate of 0.5 percent over the 21-year forecast period, growing from an estimated 202,865 in 2013 to 225,700 aircraft by 2034. The more expensive and sophisticated turbine-powered fleet (including rotorcraft) is projected to grow to a total of 49,565 aircraft at an average rate of 2.6 percent a year over the forecast period, with the turbine jet portion increasing at 3.0 percent a year, reaching a total of 22,050 by 2034.



The number of active piston-powered aircraft (including rotorcraft) is projected to decrease at an average annual rate of 0.3 percent from the 2013 total of 141,325 to 131,615 by 2034, with declines in both single and multi-engine fixed wing aircraft, but with the smaller category of piston-powered rotorcraft growing at 1.7 percent a year. Single-engine fixed-wing piston aircraft, which are much more numerous within this group, are projected to decline at a rate of 0.4 percent, while multi-engine fixed wing piston aircraft are projected to decline by 0.5 percent a year.

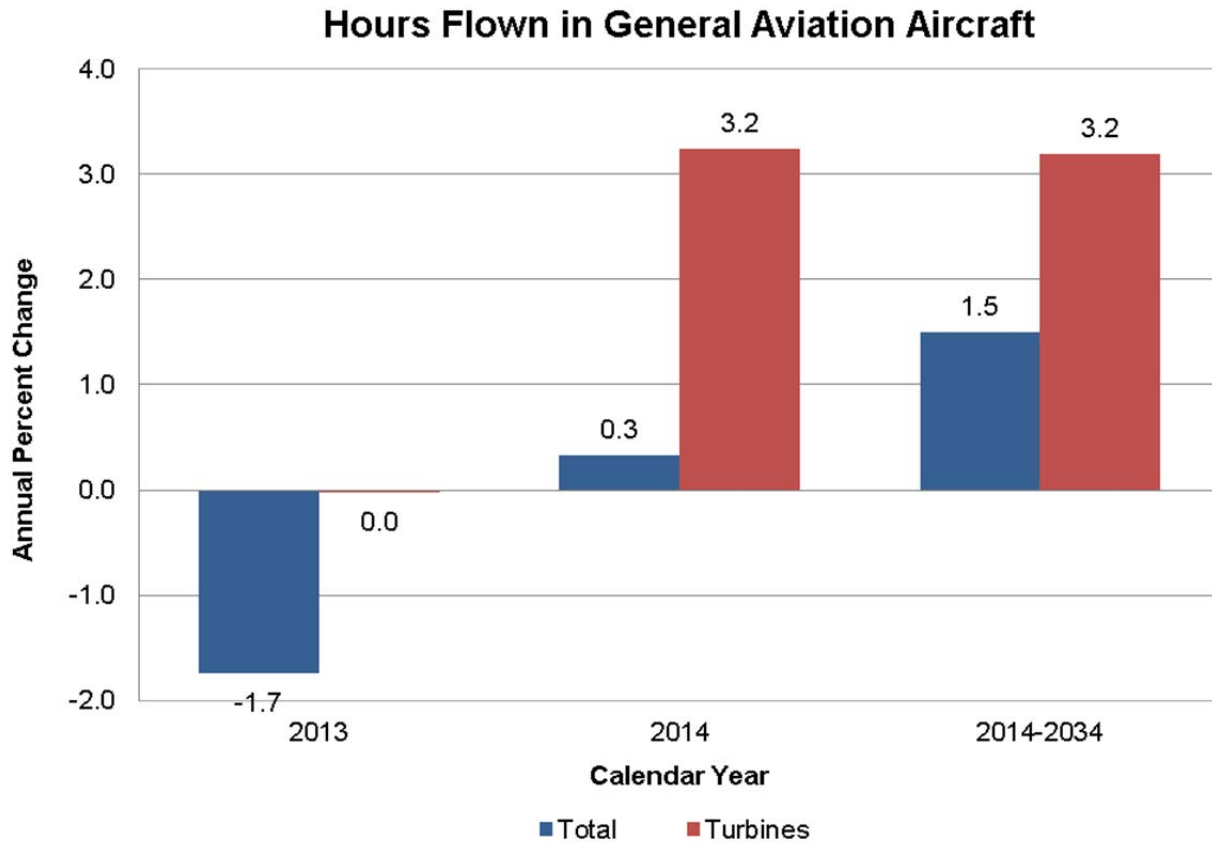
Starting in 2005, a new category of aircraft (previously not included in the FAA's aircraft registry counts) was created: "light sport" aircraft. At the end of 2012, a total of 2,001 active special light-sport aircraft were estimated in this category (Beginning in 2009, experimental light-sport aircraft category was reported in FAA statistics as a separate category and until 2012 reported under light sport aircraft together with the special light-sport aircraft. Starting in 2012, this experimental light-sport group was re-classified within the experimental aircraft category). The forecast assumes about 4.1 percent annual growth of the fleet by 2034, to a total of 4,880 light sport aircraft.

The total number of general aviation hours flown is projected to increase by 1.4 percent yearly over the forecast period. The FAA projects faster growth in hours will occur after 2023 with increases in the fixed wing turbine aircraft fleet, as well as increasing utilization of both single and multi-engine piston aircraft as the aging of this fleet starts to slow down. In the medium term, much of the increase in hours flown reflects strong growth in the rotorcraft and turbine jet fleets.

Hours flown by turbine aircraft (including rotorcraft) are forecast to increase 3.2 percent yearly over the forecast period, compared with a decline of 0.4 percent for piston-powered aircraft. Although hours flown by piston rotorcraft are forecast to increase an average of 1.8 percent per year during the forecast period, they have a relatively small share (less than 10 percent) in this segment of hours flown by general aviation aircraft; and thus have a small impact on the overall trend. Jet aircraft are forecast to account for most of the increase, with hours flown increasing at an average annual rate of 4.2 percent over the forecast period. The large increases in jet hours result mainly from the increasing size of the business jet fleet, along with a measured recovery in utilization rates from recession induced record lows. Turboprop hours are also expected to continue their increase, as also indicated by the 2012 GA Survey, which were significantly higher than previously estimated. .

Rotorcraft hours, which were less impacted by the economic downturn when compared to other categories and rebounded earlier, are projected to grow by 2.8 percent yearly, with turbine rotorcraft growing at an average annual rate of 3.1 percent. In our previous forecast, we had expected a decline in utilization rates of turbine rotorcraft with the assumption that recently improved affordability at the lower end of the turbine market after the introduction of a new light model would cause replacement of some pistons, but as they would function in their previous piston uses, utilization rates of some new turbines would be closer to those of the pistons. However, sales reports show that most of the replacements were not for pistons, which suggest that the new purchases were possibly to replace other turbine helicopter at the lower end of the market, or the newly introduced light turbine model was a product fulfilling a previously unmet need at the light end of the market. Overall, the market growth was robust in both segments of the industry. Therefore, we have changed our assumption of declining utilization for the turbine rotorcraft.

Lastly, the light sport aircraft category, which now includes only the special light sport (experimental light-sport aircraft is now considered as part of the experimental aircraft category), is expected to see an increase in hours flown of 5.1 percent a year, primarily driven by growth in the fleet.



The number of active general aviation pilots (excluding air transport pilots) is projected to be 484,425 in 2034, an increase of over 35,000 (up 0.4 percent yearly) over the forecast period. Between 2011 and 2013, there was a decline of 12,659 in the number of commercial pilots, accompanied by an increase of 7,313 in the number of air transport pilots (ATPs). A substantial part of the decline in commercial pilots is thought to be a result of these pilots obtaining the higher level ATP certificates as required by the Airline Safety and Federal Aviation Administration Extension Act of 2010. This Act mandated that all part 121 (scheduled airline) flight crew members would hold an ATP certificate by August 2, 2013. FAA estimated there were about 13,000 airline pilots holding a commercial pilot certificate, most of which were serving at Second in Command positions at the regional airlines. Since airline pilots could no longer operate with only a commercial pilot certificate after August 2013 (excluding a limited number of special cases as specified by 2013 FAA Final Rule for Pilot Certification and Qualification Requirements for Air Carrier Operations), we have reduced our commercial pilot forecast compared to the previous year and increased our ATP forecast. Taking this change into consideration, commercial pilots are projected to increase from 108,206 in 2013 to 122,000 in 2034, an average annual increase of 0.6 percent. The number of student pilots is forecast to decrease at an average annual rate of 0.2 percent over the forecast period, declining from 120,285 in 2013 to 116,050 in 2034. In addition,

the FAA is projecting that by the end of the forecast period a total of 15,200 sport pilots will be certified. As of December 31, 2013, the number of sport pilot certificates issued was 4,824 reflecting a steady increase in this new “entry level” pilot certificate that was only created in 2005. The number of private pilots is projected to grow at an average yearly rate of 0.1 percent over the forecast period to a total of 182,450 in 2034 from 180,214 in 2013.

FAA Operations Forecasts

FAA and Contract Towers

Activity at the 516 FAA (264) and contract towers (252) totaled 49.9 million operations in 2013, down 1.3 percent from 2012. Activity is projected to rise 0.8 percent in 2014, with increases in both commercial and non-commercial activity. Growth in total activity at FAA and contract towers accelerates slightly in 2015 (1.1 percent) and for the balance of the forecast, activity grows at an average rate of 1.0 percent per year, reaching 61.9 million operations in 2034.

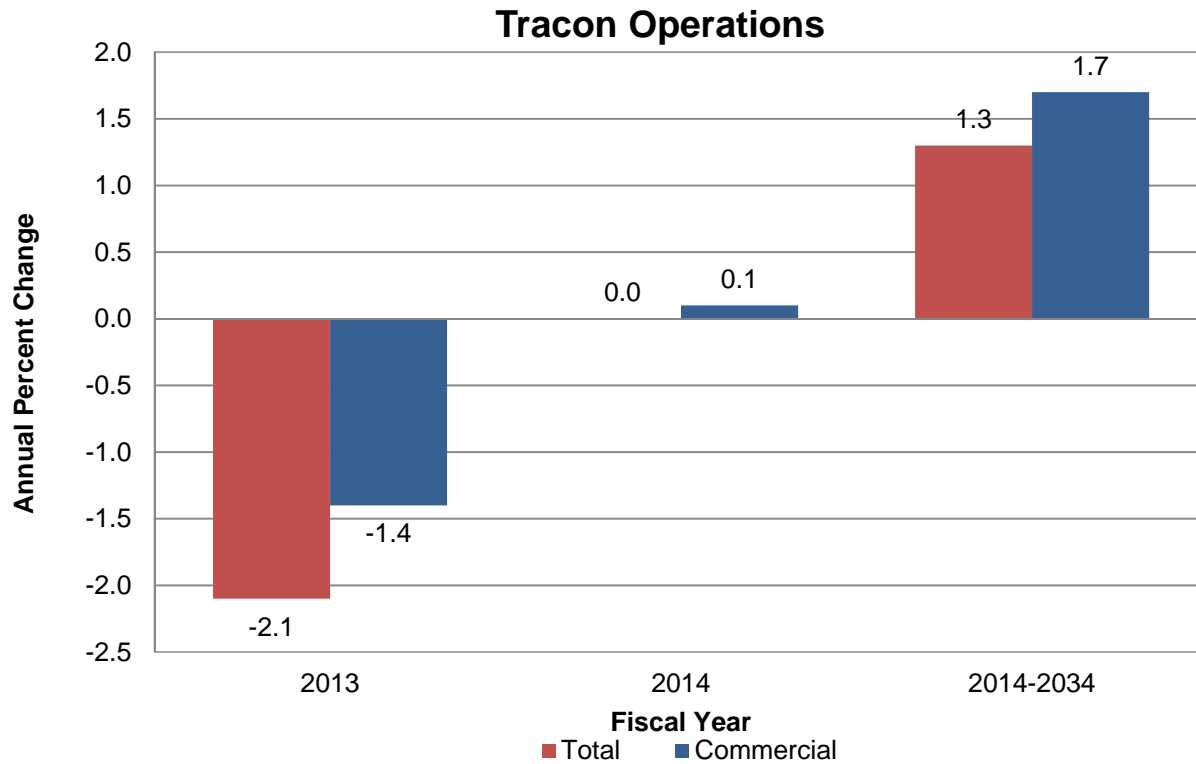
Most of the growth over the forecast period results from increased commercial aircraft activity (up 1.8 percent annually). Air carrier activity is projected to increase (1.4) percent in 2014 as carriers keep capacity in check. Beyond 2014, air carrier activity is projected to increase an average of 2.7 percent per year over the forecast period. The increase in air carrier activity is driven by combination of mainline carriers increasing capacity in response to growing demand as well as an increase in the operations of 70-90 seat jets which are counted in the air carrier category. Commuter/air taxi operations are forecast to fall 1.5 percent in 2014 and decrease 0.1 percent a year for the balance of the forecast period as regional jets less than 50 seats exit the industry.

General aviation activity decreased 1.2 percent in 2013 as itinerant activity fell 2.8 percent. Overall general aviation activity is projected to increase 1.4 percent in 2014 reflecting the impact of an improving economy on flight hours and operations. For the entire forecast period, general aviation activity at towered airports is projected to increase an average of 0.5 percent a year, to 28.7 million operations in 2034. General aviation activity at combined FAA/contract towers grows in line with the modest increase forecast for general aviation hours already cited. Most operations at the smaller towers are in piston aircraft, while those at the largest airports tend to be turbine operations.

Military activity fell 1.0 percent in 2013 and is assumed to remain at 2013 levels (2.55 million) throughout the balance of the forecast period.

The forecasted growth in operations is not uniform across all facility categories. Over the forecast period, total operations at large hub airports (those airports that enplane 1% or more of total US enplanements) are projected to increase from 12.3 million in 2013 to 17.8 million in 2034, an average annual rate of 1.7 percent a year. Operations at these facilities are overwhelmingly commercial in nature (95.3 percent in 2013) and their growth will mirror the growth in total commercial operations. Total operations at medium hub airports (those airports that enplane 0.25 to 0.99 percent of total US enplanements) are projected to increase a bit slower than the large hubs, averaging 1.5 percent a year over the forecast period, to total 7.1 million in 2034. In the largest category, small and non-hub airports, where 82 percent of the operations are non-commercial in nature, total operations are projected to increase from 32.4 million in 2013 to 37.1 million in 2034, an average annual rate of 0.6 percent a year.

Operations¹⁴ at FAA TRACONs (Terminal Radar Approach Control) fell 2.1 percent in 2013, the ninth year in a row. They are projected to remain steady in 2014 as declines in non-commercial activity offset a slight rise in commercial activity. After 2014, TRACON operations are forecast to increase at an average annual rate of 1.3 percent for the balance of the forecast, reflecting the increasingly commercial nature of TRACON operations. For the entire forecast period, TRACON operations grow an average of 1.2 percent per year, totaling 47.9 million in 2034.



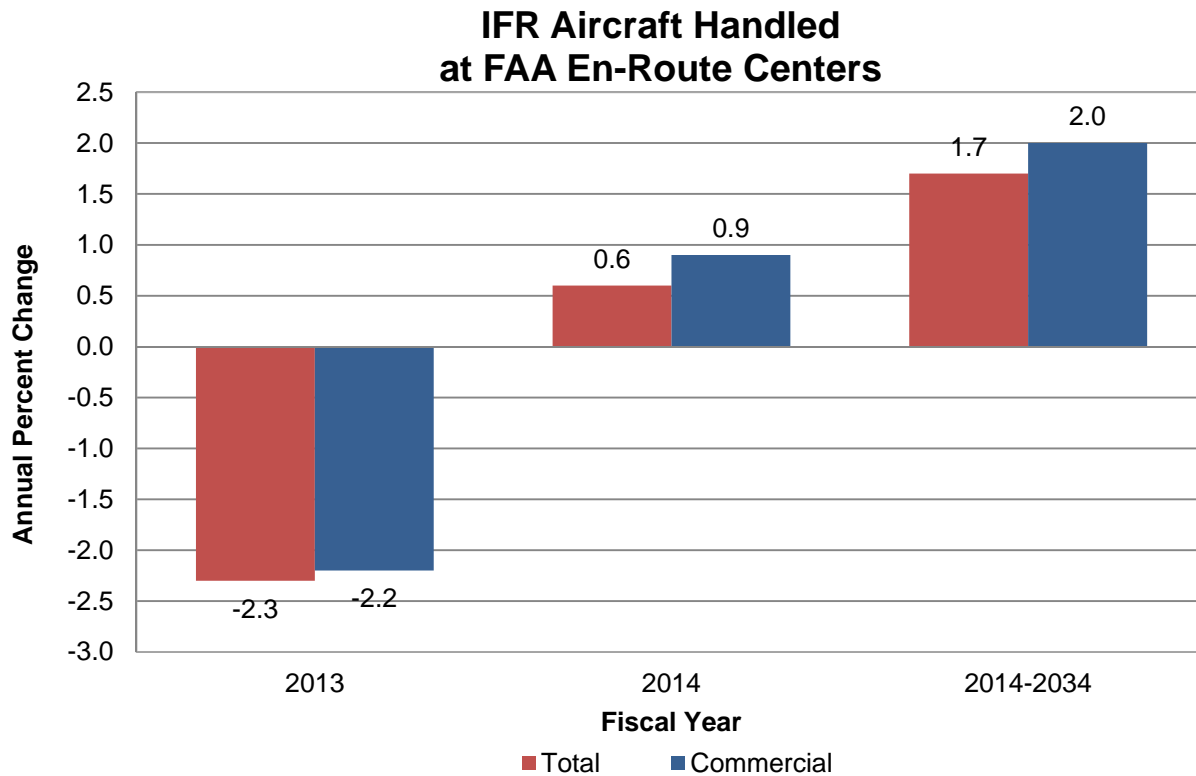
Over the forecast period, commercial aircraft operations at FAA TRACONs are forecast to increase at 1.7 percent per year driven by growth in air carrier activity. General aviation operations at FAA TRACONs are projected to grow 0.6 percent a year, reflecting the slow growth in the general aviation fleet and hours. Military activity is expected to remain at its 2013 level (2.2 million) of activity throughout the forecast period.

En-route Centers

The number of IFR aircraft handled at FAA en-route traffic control centers decreased 2.3 percent to 40.0 million in 2013, as declines in general aviation and military activity offset a slight increase in commercial aviation activity. In 2014 a modest increase in airline activity offsets a fall in general aviation activity, resulting in en-route center activity increasing by 0.6

¹⁴ TRACON operations consist of itinerant Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) arrivals and departures at all airports in the domain of the TRACON as well as IFR and VFR overflights.

percent. After 2014, through the balance of the forecast period, en-route activity increases 1.7 percent annually, reaching 56.4 million aircraft handled in 2034. Between 2013 and 2034 commercial activity is projected to increase at an average annual rate of 1.9 percent, reflecting increases in the commercial fleet and aircraft stage lengths. During the same period, general aviation activity is projected to grow 0.7 percent per year, reflecting growth in business aviation. Military activity is held constant at the 2013 activity level throughout the forecast period.



Activity at FAA en-route centers is growing faster than at towered airports because more of the activity at en-route centers is from the faster growing commercial sector and high-end (mainly turbine) general aviation flying. Much of general aviation activity at towered airports, which is growing more slowly, is local in nature, and does not impact the centers.